

# **SHORELINE INVENTORY & CHARACTERIZATION SUMMARY REPORT**

## **TOWN OF WAVERLY, SPOKANE COUNTY, WASHINGTON**

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# **SECTION ONE**

## **1.0 INTRODUCTION**

### **1.1 PURPOSE OF THIS SHORELINE INVENTORY & CHARACTERIZATION SUMMARY**

Under the Washington State Shoreline Management Act (SMA), each local jurisdiction with "shorelines of the state" must adopt a Shoreline Master Program (SMP) that is based on state laws and rules but tailored to the specific geographic, economic and environmental needs of the community. The Town of Waverly is in the process of updating their Shoreline Master Program (SMP). This SMP will provide a review of land use plans that coordinates development along the shorelines of Hangman (Latah) Creek in Waverly. This stream is under the jurisdiction of the SMA.

A shoreline inventory and subsequent characterization report provides the basis of a SMP update. The inventory and characterization report provides information about the existing nature of areas along the banks of waterways under the jurisdiction of the SMA. It documents areas that are currently developed or are likely to become developed. It also rates the condition of the ecosystem functions and processes along each stream to determine the overall stream health within each jurisdiction. This information is intended to be synthesized into the updated SMP, which includes environmental designations, regulations, and a restoration plan. A final SMP should be able to demonstrate how shoreline development, recreation, and access improvements can be balanced with conservation, and restoration measures that, together, maintain or improve the overall integrity and ecological functions of the State's waterways.

During the scoping process conducted with the Town of Waverly and the Washington State Department of Ecology (Ecology), it was decided that shoreline inventory efforts conducted for the Spokane County SMP update provide sufficient information to support each town's individual SMP update. However, because the County's shoreline inventory efforts covered large areas, it is not specific to the town. Therefore, the purpose of this summary report is three-fold:

- 1) To gather the relevant data from primary shoreline/stream reports that were conducted over large portions of Spokane County and present that data herein to more readily facilitate the SMP update process. This data is summarized in Sections 2.1 and 2.2.
- 2) Refine the physical boundary of the stream through the town to establish an accurate map of lands within the towns that are under the jurisdiction of the SMP. The refined stream boundaries and associated shoreline jurisdiction areas are shown on Figures 2, 3, and 4.
- 3) To incorporate additional detail gathered from site visits made in September, 2012 by a team of two biologists, an engineer, and a planner. This information is provided in Section 3 of this report.

### **1.2 SMA JURISDICTION WITHIN WAVERLY**

Under the SMA, all lands within 200 horizontal feet of the ordinary high water line (OHWL) (legal boundary) of Hangman (Latah) Creek within the Town of Waverly is under the jurisdiction of the SMP. The OHWM is defined by the marking upon the shoreline created by regular seasonal high water

events that occur at least once every 1.5 years (Olsen and Stockdale 2010). The OHWM is not defined by infrequent flood events. Within the town, the SMA jurisdiction includes riparian natural areas, wetlands, agricultural areas, residential areas, and commercial/industrial areas.

## **SECTION TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 SPOKANE COUNTY SHORELINE INVENTORY REPORT**

The Landau and Associates Spokane County Shoreline Master Program Update Report, dated July 6, 2005, categorized the Hangman (Latah) Creek ecosystem. The update report is based largely on The Spokane County Proper Functioning Condition (PFC) Stream Inventory and Assessment Report, which was finalized in June 2005 by the Spokane County Conservation District (SCCD - later renamed as the Spokane Conservation District). The PFC report provided an inventory and assessment of the physical (hydrological) and ecological condition of streams and rivers throughout the county that fall under the jurisdiction of the SMA. The PFC report also collected limited information on riparian plant communities and other biological data.

Based on the shoreline characterization, the SMP Update Report incorporated existing and proposed land uses to create recommended environmental designations for shorelines throughout the county. Environmental designations determine allowable uses within the shoreline jurisdiction. For example, a designation of “conservancy” is intended to restrict development uses in order to conserve natural areas while a designation of “shoreline residential” is intended to allow some residential development. There are five shoreline environmental designations proposed by Ecology but local jurisdictions are allowed to tailor these, as needed, to the conditions present within their municipal boundary.

Each inventoried stream was broken up into sections referred to as “reaches” that are generally a few miles long and contain similar stream conditions. Reach breaks were generally located at locations where the character of the stream changed. These breaks were often located where the stream valley confinement changed or where tributaries entered into a main channel. The SMP Update Report summarizes each shoreline reach for six general ecological topics: vegetation, soils, water movement, wildlife, fish, and water quality. These topics provide an overall summary of the ecological functions of each shoreline and identify which functions are healthy, which have been significantly altered or adversely impacted, and which functions may have

##### 2.1.1. Waverly

The Town of Waverly is within Hangman Creek reach number 8. Reach number 8 is designated as “Shoreline Residential” with one single family dwelling and some vacant parcels located within the shoreline zone within town. Downstream of the town boundary, this transitions into an “Urban Conservancy” designation with agricultural and forest set-aside uses on either side of the river. This section of the reach lacks a healthy riparian plant community. Riparian vegetation is limited to a stand of black cottonwood trees and reed canary grass which is well established for the entire length along both banks and extends from the water’s edge to a strip of mixed grasses and noxious weeds that border the agricultural lands. Shoreline soils consist of Caldwell silt loam which presents little or no hazard of erosion. This section of river has been rated as non-functioning. This determination was given because the riparian-wetland area did not provide adequate vegetation, landform, or large woody debris to dissipate energies associated with flow events and thus lacked sufficient structure to reduce erosion or improve water quality. Recommended restoration strategies include: passive bioengineering, native plant enhancement, and buffer requirements.

#### **2.2 HANGMAN CREEK TMDL**

The Hangman Creek (also known as Latah Creek) watershed drains approximately 431,000 acres and

spans across two states and four counties. More than 60 percent of the watershed resides in eastern Washington State (WRIA 56) while the remaining portion, including the headwaters, originates in the western foothills of the Rocky Mountains near Sanders, Idaho. The major tributaries to Hangman Creek are Marshall Creek; California Creek; Spangle Creek; Rock Creek; Rattler Run Creek; and the Little Hangman Creek.

Since 2004, the SCCD and Ecology have been studying the total maximum daily load (TMDL) for the Hangman Creek watershed. A TMDL, also known as a water quality improvement plan, is a common-sense, science-based approach to cleaning up polluted water so that it meets water quality standards. TMDLs established today also can help manage water quality on a watershed scale to prevent the loss of beneficial uses in the future. Beneficial uses can include irrigation, fishing, habitat, recreation (swimming, wading, and boating) and other uses.

Ecology and the SCCD are developing TMDLs because several parts of Hangman Creek were identified on the 1998 303(d) list of impaired waters for not meeting state water quality standards for fecal coliform, dissolved oxygen, pH, and temperature. Ecology's Water Quality Program, states that it appears that, out of all the TMDL factors, temperature is probably the most relevant to the SMP update. This is because the SMP regulates the removal of riparian vegetation and encourages the restoration of riparian vegetation along creeks, which shades the water and assists with temperature issues.

#### Water quality issues

Streams in the Hangman Creek Watershed currently do not meet Washington State's water quality standards for several reasons. Land use influences, (agriculture, impervious surfaces, timber harvest, roads, etc.) as well as stream channel and flood plain alterations over the last 100-years have contributed to "flashy" flow conditions, unstable stream banks, loss of riparian vegetation, and substandard water quality.

Streams in the Hangman Creek Watershed are impaired by excess fecal coliform, turbidity, and elevated water temperatures. Ecology and SCCD studied these water quality problems and developed TMDL report outlining the necessary pollutant reductions and an implementation strategy (Joy et.al, 2009). This water quality implementation plan expands on the recommendations in the TMDL and lays out the roles and responsibilities for addressing various water quality issues in the watershed. The TMDL study identifies pollution problems in the watershed, and then specifies how much pollution needs to be reduced or eliminated to achieve clean water.

The watershed contains ten permitted wastewater treatment plant (WWTP) facilities in Washington. Four of these facilities have state wastewater discharge permits to discharge to ground. The six remaining WWTPs have National Pollutant Discharge Elimination System (NPDES) permits to discharge to surface water.

This implementation plan outlines the issues that need to be addressed to bring the streams into compliance with water quality standards for bacteria, temperature and turbidity. Because of an interest in addressing phosphorus in the Spokane River, this plan also recommends activities to reduce nutrients. The 11 water quality issues that need to be addressed are:

- ☐ Issue 1: Sediment/nutrients from agricultural operations.
- ☐ Issue 2: Sediment/fecal coliform from livestock and wildlife.
- ☐ Issue 3: Nutrients/chemicals from residential uses.

- ☐ Issue 4: Sediment/nutrients from agricultural field ditches.
- ☐ Issue 5: Nutrients/fecal coliform from improperly functioning septic systems.
- ☐ Issue 6: Sediment from gravel and summer roads.
- ☐ Issue 7: Sediment from sheer or undercut banks.
- ☐ Issue 8: Sediment/fecal coliform from stormwater.
- ☐ Issue 9: Sediment from poor forestry management.
- ☐ Issue 10: Sediment from roadside ditching.
- ☐ Issue 11: Solar heating from lack of riparian shade.

The activities described in this plan to address these issues include:

- ☐ Converting conventional farming tillage practices to direct seed tillage.
- ☐ Implementing agricultural best management practices (BMPs) to reduce erosion.
- ☐ Enhancing and restoring riparian buffers.
- ☐ Managing livestock to prevent their waste from reaching streams.
- ☐ Maintaining and repairing failing septic systems.
- ☐ Streambank restoration projects.
- ☐ Following forest practice regulations when harvesting timber.
- ☐ Education about water quality issues and the activities to address them.

Many partners will need to work together to achieve the level of implementation necessary to meet the water quality goals of the TMDL water quality implementation plan. The SMP update allows for water quality improvement opportunities within a separate portion of the Hangman Creek Watershed.

## SECTION THREE

### 3.1 LOCAL CHARACTERISTICS

The Hangman (Latah) Creek watershed, which includes Rock Creek, has an arid climate during the summer months and a mild inter-coastal climate during the winter months. Within the Palouse region that contains Latah, Waverly, and Rockford, the creeks flow through rolling loess hills prior to entering basalt canyons and glacial outwash soils downstream to the north of the Rock Creek confluence (SCCD 2005). Agriculture is the dominant land use within the basin. The majority of agriculture is non-irrigated annual grass crops. This land use often encroaches well into the SMA jurisdiction to the edge of the existing streambanks. In addition, livestock are common in shoreline areas. Agricultural land use is present within the towns of Latah, Waverly, and Rockford as well but with a greater density of commercial and residential development within and adjacent to the shoreline zone. Additionally, the creek shorelines have been modified within all three of the Towns for enhanced flood protection due to the nearby developments.

### 3.2 FIELD OBSERVATIONS

#### 3.2.1 Waverly

The Town of Waverly spans a 4,500-foot-long portion of Hangman Creek near stream mile 39. The SMP jurisdiction includes approximately 18.4 acres of lands along the creek (see Figure 3). The small town contained 106 people in 2010 according to the most recent census. According to the Spokane County tax parcel database, most of the land immediately adjacent to the creek through the center of town is publicly owned by the Town of Waverly. These publicly-owned lands are primarily vacant and include the active channel and surrounding floodplains. The topography within the floodplain contains bars and swales indicating that the creek has a tendency for periodic avulsion throughout the floodplain. The topography rises 30-40 feet above the floodplain to residential areas at the outer limits of the shoreline jurisdiction. This includes several small residential parcels within the outer periphery of the SMP jurisdiction. In addition, there are two parcels used for agriculture at the north end of town along the east side of the creek.

The town appears to have very little interaction with the shoreline area other than residential uses along the periphery of the SMP. Inner shoreline areas do not contain roads or trails. The creek and adjacent lands are not maintained and are heavily infested with reed canarygrass and tansy, two non-native species that displace native vegetation. Only a few scattered patches of cottonwood and willows were noted. The tax parcels include right-of-way over the creek for a future bridge that would connect Elm Street on the southwest side of the creek to the north side of town. However, there is little need for such a bridge and it is unlikely to be constructed. No other proposed shoreline developments are anticipated.

The town and surrounding areas for several miles are mapped by the WDFW as Priority Habitat for Rocky Mountain Elk. However, this habitat polygon is so large that it cannot influence shoreline decision making within the town.

Issues affecting the quality of the shoreline habitat include untreated stormwater discharge to the creek, infestation with non-native plants, stream downcutting and potential disconnection from the floodplain, erosion, and lack of cover/shade. Based on site observations, recommended restoration opportunities include grade controls, and the re-establishment of native woody shoreline plantings. The shoreline areas may also be enhanced to provide increased public access for recreation by the development of trails and native landscaping.



## **SECTION FOUR**

### **REFERENCES**

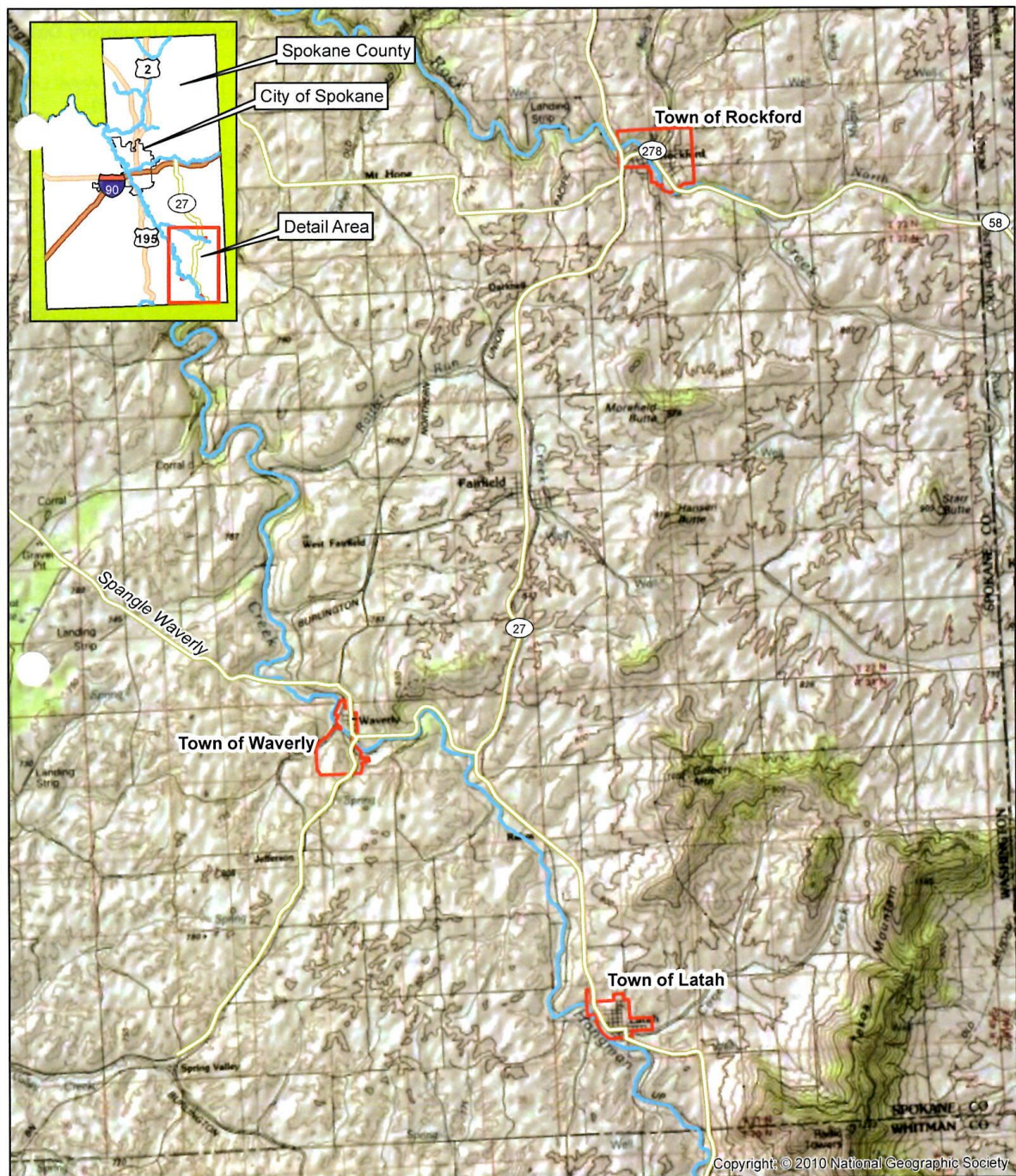
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URS. 2015. Report, Town of Waverly Shoreline Master Program update, November 2012.

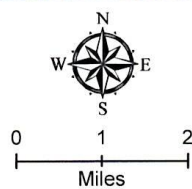
Olson, P. and E. Stockdale. 2010. Determining the Ordinary High Water Mark on Streams in Washington State. Second Review Draft. Washington State Department of Ecology (DOE), Shorelands & Environmental Assistance Program, Lacey, WA. Ecology Publication # 08-06-001.

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- Legend
- Municipal Boundaries
  - Major Roads
  - Streams Under SMA Jurisdiction



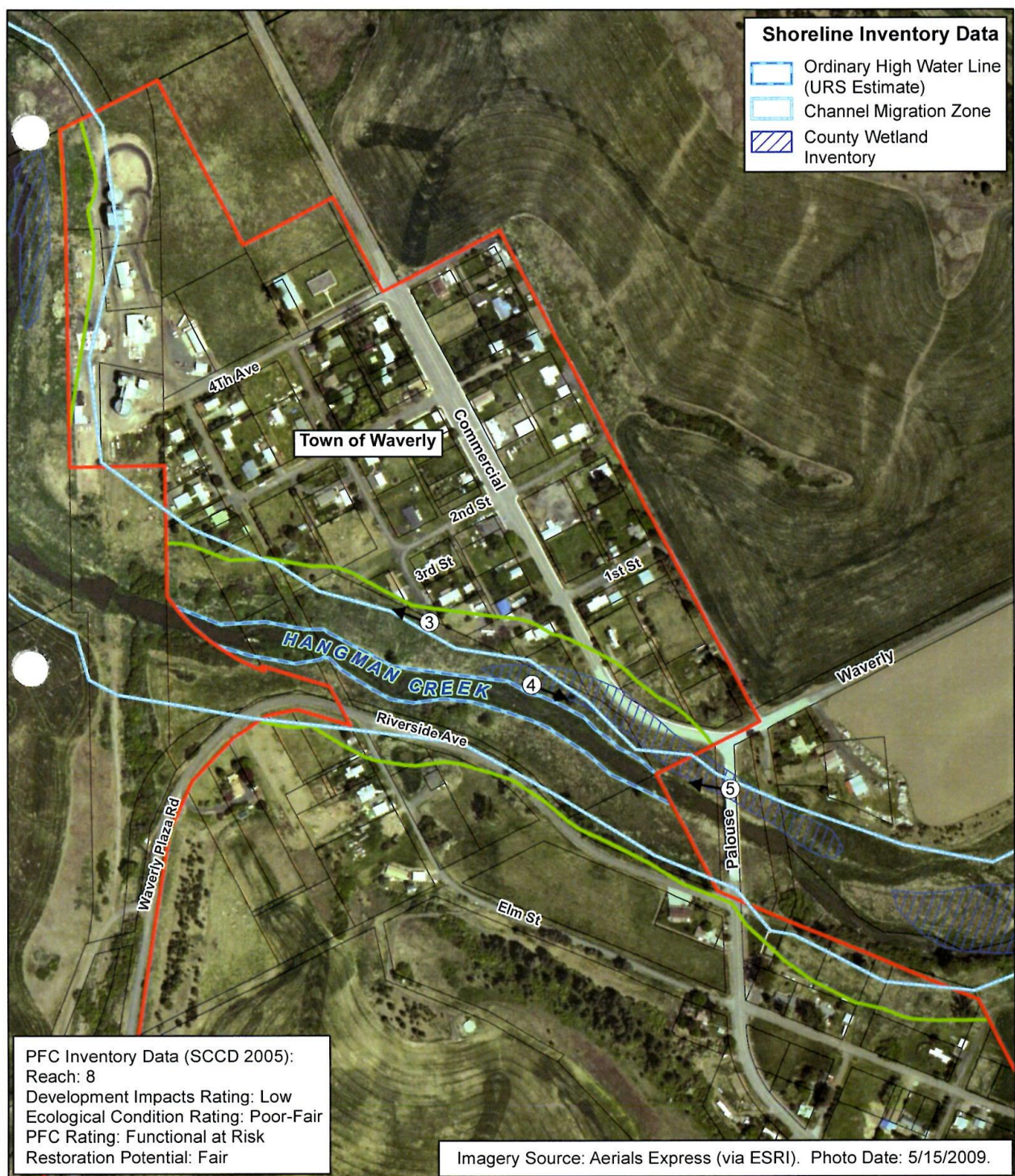
**FIGURE 1:**  
**SHORELINE UPDATE COALITION TOWNS**

Shoreline Master Program Update  
Towns of Latah, Rockford, and Waverly  
Spokane County, Washington

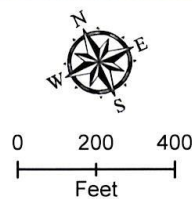
September 18, 2012

**URS**





- Legend**
- Municipal Boundary
  - SMP Jurisdiction
  - Tax Parcels
  - Photo Location & Direction (See Appendix A)




**FIGURE 2:  
TOWN OF WAVERLY SHORELINE INVENTORY**


Shoreline Master Program Update  
 Cities of Latah, Rockford, and Waverly  
 Spokane County, Washington  
 October 2, 2012

**URS**




<b>Photo No.</b> <b>3</b>	<b>Date:</b> 9/7/2012	
<b>Direction Photo Taken:</b>  Looking northwest		
<b>Description:</b>  Overview of the active floodplain around Hangman Creek in the Town of Waverly. Aside from scattered pockets of willows near the north end of town, the majority of the town's shorelines are dominated by invasive, herbaceous species that provide little structural streambank support.		

<b>Photo No.</b> <b>4</b>	<b>Date:</b> 9/7/2012
<b>Direction Photo Taken:</b>  Looking southeast	
<b>Description:</b>  Looking toward the bridge at the south end of Waverly. The ordinary high water line for the stream is located along the light brown line of reed canarygrass, which coincides with vertical streambanks separating the active channel from the floodplain terrace above.	

A photograph showing a stream flowing through a lush green floodplain. In the foreground, there is a dense area of tall, light-brown reed canarygrass. A distinct line of this grass separates the active water channel from the higher ground. The stream is visible as a narrow, dark channel winding through the greenery. In the background, there is a line of trees, including several tall, thin evergreens and some deciduous trees. The sky is clear and blue.

<b>Photo No.</b> <b>5</b>	<b>Date:</b> 9/7/2012
<b>Direction Photo Taken:</b> Looking northwest	
<b>Description:</b> Photo provides another overview of shoreline conditions from the south end of Waverly.	

A landscape photograph showing a grassy field with a small stream or ditch running through it. In the background, there are trees and a clear blue sky.